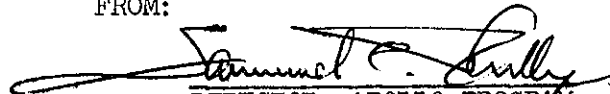


APOLLO PROGRAM DIRECTIVE NO. 8

TO : DISTRIBUTION

FROM:


DIRECTOR, APOLLO PROGRAM

SUBJECT : Apollo Flight Readiness Reviews, Part I

- REFERENCES:
- (a) Apollo Program Development Plan, Section 14, "Mission Operations" (1965 Revision, prospectively September 1965)
 - (b) Apollo Program Directive No. 6
 - (c) Letter dated August 4, 1965, Flight Readiness Review, Part II from OMSF, Director, Mission Operations (M-C MAO 1400)
 - (d) Memorandum of Agreement: MSFC/KSC Relations, dated August 11, 1964
 - (e) Clarification and Implementation Instructions, MSFC/KSC Relations, dated March 9, 1965

I. PURPOSE

This Directive defines the review procedure and requirements of the Apollo Program Director's Flight Readiness Review (FRR-Part I) to be conducted prior to each Apollo Flight Mission. The requirement for this review (FRR-Part I) was established in references (a) and (b). It precedes the Mission Director's Flight Readiness Review (FRR-Part II) described in reference (c).

II. SCOPE

The scope of FRR-Part I described herein includes formal review of the readiness status of the spacecraft, launch vehicle, and launch complex in order to certify the flight readiness of the systems for the mission. This Directive applies to all Apollo-Saturn IB and Apollo-Saturn V missions.

III. ORGANIZATION

The FRR, Part I, will be conducted by the Apollo Program Director. Attendance will include the following as a minimum:

Saturn (IB or V) Program Manager, MSFC
Apollo Spacecraft Program Manager, MSC
Director, Flight Operations, MSC
Director, Flight Crew Operations, MSC

Director, Plans, Programs, and Resources, KSC
Director, Launch Operations, KSC
Mission Director, MO

Participation of Subsystem Managers, Stage Managers, and Assistant Directors is at the option of the cognizant Program Managers or Director.

Participation of Experiments Managers or representatives of other agencies involved will be arranged as appropriate by the Program Director.

IV. REVIEW PROCEDURES

A. The review will be conducted on the basis of oral summary presentations of documented readiness assessments (see attachment 1), approved by the responsible program managers. These readiness assessments for the flight hardware and the launch complex are to cover:

1. The period from hardware manufacturing completion to shipment to KSC
2. The checkout and launch preparation period at KSC
3. The development and qualification testing conducted at various locations in support of the flight mission
4. Assessment of reliability of the Space Vehicle and Launch Complex.

B. The assignments of responsibility for the major agenda topics of the review are as follows:

1. Statement of review objectives - Program Director
2. Synopsis of Mission Objectives - Director of Test, Apollo Program Office, OMSF
- *3. Launch Vehicle Readiness Assessment - Launch Vehicle Program Manager, MSFC
- *4. Spacecraft Readiness Assessment - Spacecraft Program Manager, MSC
5. Launch Complex Readiness Assessment - Director, Plans, Programs, and Resources, KSC

* It is expected that the Program Managers will have KSC present the review of assembly and checkout activities at KSC in line with the responsibilities established in references (d) and (e).

6. Reliability Assessment covering the integrated Space Vehicle and Launch Complex - Director of Reliability and Quality, Apollo Program Office, OMSF
 7. Review of Flight Mission Rules - Director, Flight Operations, MSC
 8. Review of Launch Mission Rules - Director, Launch Operations, KSC
- C. The detailed agenda for each FRR identifying topics, speakers, time allotments, etc., will be issued approximately one month in advance over the joint signatures of the Apollo Program Director and the Mission Director.
- D. The Launch Vehicle, Spacecraft, and Launch Complex Readiness Assessments identified in paragraph IV. B are to include:
1. Results of hardware checkout and test operations up to date of the FRR, with discussion of anomalies encountered, failure history, and corrective actions taken.
 2. Review of hardware configuration status. This should include a review down to the subsystem level and should identify all interim systems, inactive systems, and systems of a pre-qualification configuration. It should include certification that the hardware end items are described by officially released engineering drawings and specifications and that all required engineering changes after hardware delivery from the factory have been installed in the hardware.
 3. Identification of waivers and deviations to contract end item specifications and basis for approval.
 4. Status of all development, qualification, and reliability testing that constrains the flight mission. This should include identification of the failures that have occurred, the corrective actions taken, and tests planned but not completed.
 5. Status of critical life components and life remaining.
 6. Identification of shortages and open work items and corrective actions taken.
 7. Statement of apportioned reliability goals and comparable assessed reliability, including a discussion of the basis for assessment.
 8. Summary readiness assessment and recommendation.

- E. As soon as practicable following conclusion of Part I of the FRR, the Program Director will sign a document certifying flight readiness of the space vehicle and launch complex. This document shall be prepared prior to the Review by the assigned Review Secretary and shall incorporate by reference the documents called for in Attachment 1. It will define all open actions which must be completed before launch with responsibility assignments.

V. SCHEDULE

The FRR will be scheduled approximately two weeks prior to launch for the Saturn IB, and approximately three weeks prior to launch for the Saturn V. The date for the FRR will be established and detailed agenda issued approximately one month in advance.

VI. ACTION

This Directive shall be implemented immediately to insure planning, scheduling, preparation, and conduct of the FRR.

ATTACHMENT 1

DOCUMENTATION REQUIREMENTS

The documents identified below shall be submitted to the Apollo Program Director one week in advance of the FRR by the following designated officials:

A. Launch Vehicle Program Manager, MSFC

1. Certificate of Flight Worthiness, suitably updated, on each stage and the Instrument Unit.
2. Flight Readiness Summary Report on each stage, the Instrument Unit and GSE. These reports are to include as a minimum the topics identified in paragraph IV. D.
3. Copy of the Launch Vehicle Report prepared by KSC together with the Program Manager's endorsement of same. This report will summarize the launch preparation, checkout, testing, and integration work accomplished at KSC.

B. Spacecraft Program Manager, MSC

1. Certificate of Flight Worthiness, suitably updated, on each module, and the Spacecraft-LEM Adapter.
2. Flight Readiness Summary Reports on the Command and Service Module, Spacecraft-LEM Adapter, the LEM (when appropriate) and Spacecraft GSE. These reports are to include as a minimum the topics identified in paragraph IV. D.
3. Copy of the Spacecraft Report prepared by KSC, together with the Program Manager's endorsement of same. This report will summarize the launch preparation checkout, testing, and integration work accomplished at KSC.

C. Director, Plans, Programs, and Resources, KSC

1. Complex Integration and Launch Site Report. This report shall cover the readiness of the launch complex and all its associated equipments.

D. Director, Launch Operations, KSC

1. Statement of Updated Launch Mission Rules

E. Director, Flight Operations, MSC

1. Statement of Updated Flight Mission Rules

F. Director, Apollo Reliability and Quality, Apollo Program Office, OMSF

1. Reliability Assessment Report - Integrated Space Vehicle/Launch Complex.

NOTE: The Program Managers' Flight Readiness Summary Reports and the KSC prepared Launch Vehicle and Spacecraft Reports should be organized on a subsystem basis where practicable. These documents as well as the KSC complex Integration and Launch Site report shall be supported by up-to-date quality and historical records for all hardware.

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MAR/Lemke

MAP/Seccomb

MAT/Savage (6)

MAO/Holcomb

MSC/Director

MSC/Program Managers (Apollo) (6)

MSC/Assistant Director, Flight Operations (6)

MSC/Assistant Director, Crew Operations (6)

MSC/Thompson

MSC/Bland

MSC/Medical Operations Director

MSFC/Director

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KSC/Director

KSC/Director, Launch Operations (6)

KSC/Director, Plans, Programs and Resources (6)

KSC/Assistant Director, Support Operations (6)

KSC/Security Officer

KSC/Mathews

GSFC/Director

GSFC/Director, Office of Tracking & Data Systems

GSFC/Chief, Network Engineering & Operations Division

GSFC/Chief, Manned Flight Operations Division

JPL/Director

JPL/Assistant Director for Tracking & Data Acquisition

NRD Headquarters/Gen. Davis

DOD Manager for MSF Support Operations/Col. Olson (6)

Weather Bureau/Spaceflight Meteorology Group

Bellcomm/Information Analysis Dept. Head